

76. (New) An apparatus for providing digital picture-on-picture capability, wherein the apparatus is an upgrade card insertable into an existing set top terminal, comprising:

A12 a plurality of tuners for tuning to a plurality of programs, wherein the plurality of programs are comprised of both audio and video signals and wherein at least one video signal has a plurality of audio signals corresponding therewith;

a plurality of decompressors operably connected to the plurality of tuners; and

a plurality of output ports for external devices, wherein the plurality of output ports are operably connected to the plurality of decompressors, wherein at least two of the plurality of output ports are operably connected to different tuners of the plurality of tuners.--

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### REMARKS

Applicants thank Examiner Grant for the courtesies extended to the Applicants' representatives, Sung Kim and Sean Wooden, during a December 12, 2002 personal interview. The substance of the interview is incorporated in the remarks that follow. The Examiner and the Applicants' representatives discussed a "winning-formula" of claim amendments that would overcome the cited art, according to the Examiner. Accordingly, the Applicants have amended the claims to meet that winning-formula.

Claims 1-72 are pending. By this amendment, claims 2, 16, 17, 22, 34, 40, 42, 46, 49, 53-57, 60, 61 and 64 are amended. Claims 1, 7-15, 21, 26-33, 41, 44, 45, 58, 59, 65, 68 and 70 have been cancelled. New claims 73-76 are added. No new matter is introduced. The amendments to the claims find support in the claims and specification as originally filed. Amended claims 2, 22, 34, 42 and 55 and new claims 73 and 74-75, now incorporate the feature of an upgrade card insertable into an existing set top terminal. Support for this feature may be found at least at page 3, lines 17-18. The amendment to claim 16 finds support in the specification at least at page 49, line 12 - page 51, line 19 and in Figure 14. Claims 17, 40, 57, 61 and 64 have been amended to correct typographical errors and to further clarify the limitations claimed therein. Reconsideration and allowance of the claims in view of the above-amendments and the remarks that follow are respectfully requested.

**I. REJECTIONS UNDER 35 U.S.C. § 112**

**A. Rejections Under 35 U.S.C. § 112, First Paragraph**

On page 2 the Office Action rejects claims 55 and 56 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This rejection is respectfully traversed.

Claims 55 and 56 each recite an insertable upgrade card. The specification discloses expansion cards and expansion card slots at least at page 43, line 23 – page 44, line 25. Additionally, the specification discloses hardware upgrades for a set top terminal or a television at least at page 3, lines 17-23; page 24, lines 3-10; and page 39, line 23 – page 43, line 21. The drawings disclose hardware upgrades at least at Figures 12a and 12b. Additionally, the specification and drawings disclose a Turbo Card addition to a set top converter at page 24, line 15 – page 25, line 9 and Figure 6. The hardware upgrades may comprise various components to provide various useful features, thereby enhancing the overall functionality of a set top terminal or a television. Further, the specification and drawings disclose digital picture-on-picture capability at least at page 49, line 11 – page 51, line 27 and Figure 14. The digital picture-on-picture capability may enhance the overall functionality of a set top terminal or a television. Therefore, the specification and drawings would enable one of ordinary skill in the art to make or use the features of claims 55 and 56 because the specification and drawings clearly describe hardware upgrades used in conjunction with set top terminals and televisions as well as digital picture-on-picture capability.

For these reasons, withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

**B. Rejections Under 35 U.S.C. § 112, Second Paragraph**

On page 3 the Office Action rejects claims 17-20, 22-25, 57, 58, 61 and 64 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The rejection of claim 58 is rendered moot by the cancellation of claim 58. This rejection is respectfully traversed.

Claims 17, 22, 61 and 64 have been amended to comply with 35 U.S.C. § 112, second paragraph. Claims 18-20 depend from claim 17 and claims 23-25 depend from claim 22.

Therefore, claims 18-20 and 23-25 also comply with 35 U.S.C. § 112, second paragraph. Claim 57 has been amended to correct a typographical error. Therefore, claim 57 now complies with 35 U.S.C. § 112, second paragraph. Withdrawal of the rejection of claims 17-20, 22-25, 57, 61 and 64 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

## **II. REJECTION UNDER 35 U.S.C. § 102**

Claims 1, 21, 41, 44 and 45 are rejected under 35 U.S.C. § 102(e) as being anticipated by Park. The cancellation of these claims renders moot this rejection.

## **III. REJECTIONS UNDER 35 U.S.C. § 103**

### **A. Claims 1, 7-15, 26-33, 41-52, 57-59, 60 and 61**

On page 4 the Office Action rejects claims 1, 7-15, 26-33, 41-52, 54, 57-59, 60 and 61 under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,083,205 to Arai (hereafter Arai) and US Patent 5,319,707 to Wasilewski et al. (hereafter Wasilewski). The rejection of claims 1, 7-15, 26-33, 41, 44, 45, 58 and 59 is rendered moot by the cancellation of these claims. The rejection of the remaining claims, claims 42-43, 46-52, 54, 57, 60 and 61, is respectfully traversed.

Arai discloses an apparatus for displaying a picture on a picture and corresponding method (see abstract). However, Arai does not disclose or suggest an upgrade card insertable into an existing set top terminal to provide digital picture-on-picture capability.

Wasilewski does nothing to cure this defect. Wasilewski discloses a system for transmitting and receiving digital television signals (Figure 14). However, Wasilewski does not disclose or suggest an upgrade card insertable into an existing set top terminal to provide digital picture-on-picture capability.

In contrast to Arai and Wasilewski, 42 recites an upgrade card insertable into an existing set top terminal to provide digital picture-on-picture capability. In discussing claim 55, the Office Action asserts that it would have been an obvious matter of design choice to make the apparatus in an upgrade card. As discussed during the interview, Applicants respectfully assert that the feature of an upgrade card insertable into an existing set top terminal to provide digital picture-on-picture capability is not obvious as a matter of design choice. The present application teaches that this feature has the benefit of keeping costs down for consumers, since consumers may avoid incurring the cost of replacing an existing or legacy set top terminal while also

increasing its potential functionality (see discussion on expansion cards and expansion card slots in the specification at pages 43-44).

Since Arai and Wasilewski alone do not teach or suggest each and every element of the claims, a combination of Arai and Wasilewski also does not teach or suggest each and every element of the claims. To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) must teach or suggest all of the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and MPEP § 2142. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and MPEP § 2143.03. Therefore, claim 42 is allowable. For this reason and the additional features they recite, dependent claims 43, 46-52, 54, 57, 60 and 61 are also allowable. Withdrawal of the rejection of claims 42, 43, 46-52, 54, 57, 60 and 61 under 35 U.S.C. § 103(a) is respectfully requested.

**B. Claims 2-6, 16-20, 22-25, 34-40 and 62-64**

On page 9 the Office Action rejects claims 2-6, 16-20, 22-25, 34-40 and 62-64 under 35 U.S.C. § 103(a) as being unpatentable over Arai in view of Wasilewski and further in view of US Patent 5,442,452 to Ryu (hereafter Ryu). This rejection is respectfully traversed.

Arai and Wasilewski are discussed above. Neither Arai nor Wasilewski discloses or suggests an upgrade card insertable into an existing set top terminal, a method for outputting a plurality of audio signals for at least one video signal using an upgrade card insertable into an existing set top terminal or a method for displaying a picture on a picture using an upgrade card insertable into an existing set top terminal. Additionally, Arai and Wasilewski do not disclose or suggest a set top terminal comprising a plurality of output ports for external devices.

Ryu does nothing to cure this defect. Ryu discloses a sound mode switching method and device for multichannel selection (col. 1, lines 10-15). However, Ryu does not disclose or suggest an upgrade card insertable into an existing set top terminal, a method for outputting a plurality of audio signals for at least one video signal using an upgrade card insertable into an existing set top terminal and a method for displaying a picture on a picture using an upgrade card insertable into an existing set top terminal. Additionally, Ryu does not disclose or suggest a set top terminal comprising a plurality of output ports for external devices.

In contrast to Arai, Wasilewski and Ryu, claims 2, 22 and 34 recite an upgrade card insertable into an existing set top terminal, a method for outputting a plurality of audio signals

for at least one video signal using an upgrade card insertable into an existing set top terminal and a method for displaying a picture on a picture using an upgrade card insertable into an existing set top terminal, respectively. Additionally, in contrast to Arai, Wasilewski and Ryu, claim 16 recites an apparatus for displaying a picture on a picture, wherein the apparatus is a set top terminal, comprising a plurality of output ports for external devices.

As discussed above, Arai, Wasilewski and Ryu do not teach or suggest these limitations. Since Arai, Wasilewski and Ryu alone do not teach or suggest each and every element of the claims, a combination of Arai, Wasilewski and Ryu also does not teach or suggest each and every element of the claims. Therefore, claims 2, 16, 22 and 34, and their corresponding dependent claims, are allowable.

Claims 3-6 depend from claim 2. Claims 17-20 depend from claim 16. Claims 23-25 depend from claim 22. Claims 35-40 depend from claim 34. Claim 62-64 depend from claim 42. As discussed above, claim 42 is allowable. For this reason and the additional features they recite, dependent claims 3-6, 17-20, 23-25, 35-40 and 62-64 are allowable. Withdrawal of the rejection of claims 2-6, 16-20, 22-25, 34-40 and 62-64 under 35 U.S.C. § 103(a) is respectfully requested.

**C. Claims 53, 55-56, 65 and 72**

On page 13 the Office Action rejects claims 53, 55-56, 65, 68, 70 and 72 under 35 U.S.C. § 103(a) as being unpatentable over Arai and Wasilewski as applied to claims 1, 21, 26 and 41 above, and further in view of Park. The cancellation of claim 70 renders moot the rejection of claim 70. The rejection of the remaining claims 53, 55-56, 65, 68 and 72 is respectfully traversed.

Claims 53, 55-56, 65, 68 and 72 all depend from claim 42. As discussed above, claim 42 is allowable. Park does nothing to cure the defect discussed above with respect to Arai and Wasilewski. For this reason and the additional features they recite, dependent claims 53, 55-56, 65, 68, and 72 are allowable. Withdrawal of the rejection of claims 53, 55-56, 65, 68, and 72 under 35 U.S.C. § 103(a) is respectfully requested.

**D. Claims 66-67, 69 and 71**

On page 14 the Office Action rejects claims 66-67, 69 and 71 under 35 U.S.C. § 103(a) as being unpatentable over Arai, Wasilewski and Ryu as applied to claims 2, 16, 22 and 34 above, and further in view of Park. This rejection is respectfully traversed.

Claim 66 depends from claim 2. Claim 67 depends from claim 16. Claim 69 depends from claim 22. Claim 71 depends from claim 34. As discussed above, claims 2, 16, 22 and 34 are allowable. Moreover, Park does nothing to cure the defect discussed above with respect to Arai in view of Wasilewski and further in view of Ryu. For this reason and the additional features they recite, claims 66-67, 69 and 71 are allowable. Withdrawal of the rejection of claims 66-67, 69 and 71 under 35 U.S.C. § 103(a) is respectfully requested.

## VI. CONCLUSION

For at least the reasons set forth above, applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached pages are captioned "Version with markings to show changes made."

Respectfully submitted,

Date: January 13, 2003

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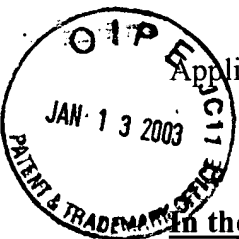
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Attachments: Version With Markings to Show Changes Made



**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**in the Claims**

The claims are amended as follows:

2. (Amended) An apparatus for outputting a plurality of audio signals for at least one video signal, comprising:

a plurality of tuners for tuning to a plurality of programs;

a plurality of video decompressors; and

a plurality of audio decompressors, wherein each of the plurality of audio and video decompressors corresponds [corresponding] to and is connected to the plurality of tuners and wherein the plurality of programs are comprised of both audio and video signals and wherein the at least one video signal may have more than one of the plurality of audio signals corresponding therewith;

wherein the apparatus is an upgrade card insertable into an existing set top terminal.

16. (Amended) An apparatus for displaying a picture on a picture, wherein the apparatus is a set top terminal, comprising:

a plurality of tuners for tuning to a plurality of programs, wherein the plurality of programs are comprised of both audio and video signals and wherein at least one video signal may have a plurality of audio signals corresponding therewith;

a plurality of decompressors connected to the plurality of tuners; and

a plurality of output ports for external devices, wherein the plurality of output ports are operably connected to the plurality of decompressors, wherein at least two of the plurality of output ports are connected to different tuners of the plurality of tuners.

17. (Amended) An apparatus for displaying a picture on a picture according to claim 16, further comprising:

a plurality of demodulators;

a plurality of demultiplexors;

a plurality of decryptors, wherein the plurality of demodulators, the plurality of demultiplexors and the plurality of decryptors are connected in series between and correspond to the plurality of tuners and the plurality of decompressors; and

a video combiner connected to the plurality of decompressors for combining the plurality of the program signals[; and].



22. (Amended) A method for outputting a plurality of audio signals for at least one video signal using an upgrade card inserted into an existing set top terminal, comprising:

tuning to a plurality of programs;

decompressing the plurality of audio signals from the plurality of programs;

decompressing a plurality of video signals from the plurality of programs;

decompressing a plurality of graphics and text signals from the plurality of programs,

wherein the plurality of programs are comprised of both audio and video signals and wherein the at least one video signal may have more than one of the plurality of audio signals corresponding therewith[; and].

34. (Amended) A method for displaying a picture on a picture using an upgrade card inserted into an existing set top terminal, comprising:

tuning to a plurality of programs;

decompressing a plurality of audio signals from the plurality of programs;

decompressing a plurality of video signals from the plurality of programs;

decompressing a plurality of graphics and text signals from the plurality of programs,

wherein the plurality of programs are comprised of both audio and video signals and wherein at least one video signal may have a plurality of audio signals corresponding therewith; and

outputting a plurality of decompressed signals from the decompressed plurality of audio, video and graphics and text signals.

40. (Amended) The method according to claim 38, wherein the step of switching between the plurality of audio signals further comprises:

switching between at least [one]two stereo audio signals in a first language corresponding to the video signal and at least one audio signal in a second language corresponding to the video signal.

42. (Amended) An apparatus that outputs multiple video signals, comprising:

first signal processing components, wherein the first signal processing components process a first video signal, [The apparatus of claim 41, wherein] the first signal processing components [comprise] comprising:

a first tuner;

a first demodulator coupled to the first tuner;

a first demultiplexor coupled to the first demodulator;

a first video/graphics/text demultiplexor coupled to the first demultiplexor, wherein the first video/graphics/text demultiplexor separates graphics, video and text from the first video signal; and

a first video decompressor coupled to the first video/graphics/text demultiplexor; and

second signal processing components, wherein the second signal processing components process a second video signal, the second signal processing components also operable to scale and redirect the second video signal, [wherein] the second signal processing components [comprise] comprising:

a second tuner;

a second demodulator coupled to the second tuner;

a second demultiplexor coupled to the second demodulator;

a second video/graphics/text demultiplexor coupled to the second demultiplexor, wherein the second video/graphics/text demultiplexor separates graphics, video and text from the second video signal; and

a second video decompressor coupled to the second video/graphics/text demultiplexor, wherein at least the second signal processing components are located on an upgrade card insertable into an existing set top terminal to provide digital picture-on-picture capability.

46. (Amended) The apparatus of claim [45]42, further comprising a video combiner, the video combiner combining a processed, scaled and repositioned first signal and a processed second video signal for display, wherein the processed, scaled and repositioned first video signal is overlaid on the processed second video signal.

48. (Amended) The apparatus of claim [45]42, further comprising a video combiner, the video combiner combining a processed, scaled and repositioned first signal and a processed second video signal for display, wherein the processed second video signal is scaled and repositioned, and wherein the processed, scaled and repositioned first and second video signals are displayed in a split screen format.

49. (Amended) The apparatus of claim [41]42, further comprising a third signal path having third signal processing components, wherein the third signal processing components process a third video signal, the third signal processing components also operable to scale and redirect the

third video signal, wherein the third signal processing components are substantially identical to the first and the second signal processing components, and wherein the first, second and third video signals are displayed simultaneously on a display.

53. (Amended) The apparatus of claim [41] 42, wherein processed, scaled and redirected video signals are provided as digital signals for display on a digital television.

54. (Amended) The apparatus of claim [41] 42, wherein the first signal path includes a first NTSC encoder and the second signal path includes a second NTSC encoder, the first and the second NTSC encoders operable to convert processed video signals and processed, scaled, repositioned video signals to analog format for display on an analog television.

55. (Amended) The apparatus of claim [41] 42, wherein the apparatus is an upgrade card, the upgrade card insertable into an existing set top terminal to provide digital picture-on-picture

57. (Amended) The apparatus of claim [41] 42, wherein the first video signal is provided to a [final]first television and the second video signal is provided to a second television.

60. (Amended) The apparatus of claim [41] 42, wherein the first signal path further includes first audio processing components and the second signal path further includes second audio processing components.

61. (Amended) The apparatus of claim [41] 42, further comprising a switch for selecting a first or a second audio signal for [display]output, the switch activated by operation of a remote control.

64. (Amended) The apparatus of claim 61, wherein the switch is operable to select additional audio signals for [display]output, the additional audio signals associated with the second video signal.

The following new claims are added:

73. (New) The apparatus of claim 42, wherein the first signal processing components are located on the upgrade card.

74. (New) The apparatus of claim 42, further comprising a microprocessor that controls processing on the first and the second signal paths such that the first video signal and the second video signal are displayed on one or more displays, and wherein the first signal processing components and the second signal processing components are substantially identical.

75. (New) An apparatus for providing digital picture-on-picture capability, wherein the apparatus is an upgrade card insertable into an existing set top terminal, comprising:

a plurality of tuners for tuning to a plurality of programs, wherein the plurality of programs are comprised of both audio and video signals and wherein at least one video signal may have a plurality of audio signals corresponding therewith;

a plurality of demodulators;

a plurality of demultiplexors;

a plurality of decryptors, wherein the plurality of demodulators, the plurality of demultiplexors and the plurality of decryptors are connected in series between and correspond to the plurality of tuners;

a plurality of decompressors operably connected to the plurality of tuners;

a video combiner connected to the plurality of decompressors for combining the plurality of the program signals; and

a plurality of output ports for external devices, wherein the plurality of output ports are operably connected to the plurality of decompressors, wherein at least two of the plurality of output ports are connected to different tuners of the plurality of tuners.

76. (New) An apparatus for providing digital picture-on-picture capability, wherein the apparatus is an upgrade card insertable into an existing set top terminal, comprising:

a plurality of tuners for tuning to a plurality of programs, wherein the plurality of programs are comprised of both audio and video signals and wherein at least one video signal has a plurality of audio signals corresponding therewith;

a plurality of decompressors operably connected to the plurality of tuners; and

a plurality of output ports for external devices, wherein the plurality of output ports are operably connected to the plurality of decompressors, wherein at least two of the plurality of output ports are operably connected to different tuners of the plurality of tuners.